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Office for Information
Technology Policy

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ALA American Library Association

October 30, 1996

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street Room 222
Washington, DC 20554

RECEIVED

OCT 30 1996

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Re: Ex Parte Presentation
CC Docket No: 96-46, Federal-State Joint Board on Universal Service
45

Dear Mr. Caton:

The attached information was delivered to Mr. James L. Casserly, Senior Legal Advisor
Office of Commissioner Susan Ness today.

Sincerely,



J. Andrew Magpantay
Director, Office for Information Technology Policy
American Library Association

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Mr. James L. Casserly
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Office of Commissioner Susan Ness
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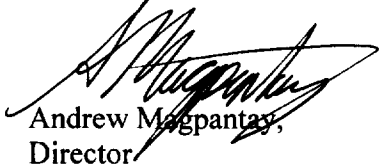
Re: Ex Parte Presentation
CC Docket No: 96-46, Federal-State Joint Board on Universal Service

Dear Mr. Casserly:

It was a pleasure meeting with you and Commissioner Ness this past Monday. I am including the following information that you had requested at our meeting.

1. Number of public school classrooms. There are 2.4 million **public** school classrooms. This information comes from a Dr. W. Vance Grant, Statistician at the National Library of Education, at the Department of Education. This number is an estimate only based on a sampling and does not include private schools.
2. Some sample prices on network hubs, CSU/DSUs, and routers. (See attached).
3. Informal survey of Internet service and connection costs. This survey is being filed today by the Department of Education and a copy was not available for me to include here. The survey was conducted by the American Association of School Administrators (the AASA), the Consortium for School Networking (CoSN), the Council of Great City Schools, and the National Rural Education Association (NERA) in conjunciton with the Department of Education.

Sincerely,



Andrew Magpantay,
Director

Office for Information Technology Policy
American Library Association

Attachments

CC: Mr. William F. Caton

Digest of Education Statistics 1995

Table 57.—Student participation in school programs and services, by control, level of school, and type of community: 1993–94

Control, level, and community type	Total students		Percent of students participating in program or service							
	Number	Percent distribution	Bilingual education	English as a second language	Remedial reading	Remedial mathematics	Programs for the handicapped	Programs for the gifted and talented	Diagnostic and prescriptive	Extended day
1	2	3	4	5	6	7	8	9	10	11
Public total	41,621,660	100.0	3.07	3.97	10.88	6.90	6.88	6.43	0.27	2.50
School level ¹										
Elementary	26,886,026	64.6	3.98	4.75	13.46	7.77	6.76	6.25	0.31	3.58
Secondary	13,757,801	33.1	1.39	2.58	5.63	5.03	6.54	6.90	0.20	0.48
Combined	977,833	2.3	1.80	1.88	13.70	9.39	14.84	4.72	0.44	1.31
Community type										
Central city	13,496,625	32.4	5.72	6.45	12.39	7.89	7.04	6.32	0.23	3.56
Urban fringe/large town	12,953,165	31.1	2.09	4.07	8.88	5.72	6.34	7.33	0.23	2.72
Rural/small town	15,171,870	36.5	1.55	1.67	11.24	7.03	7.19	5.75	0.35	1.37
Private total	4,970,646	100.0	0.81	0.58	6.35	4.16	2.98	4.93	0.89	9.20
School level ¹										
Elementary	2,803,359	56.4	0.77	0.45	7.22	4.33	0.93	3.34	0.94	12.48
Secondary	811,087	16.3	0.19	0.62	4.24	3.06	3.43	8.56	0.47	0.23
Combined	1,356,199	27.3	1.25	0.83	5.82	4.46	6.95	6.05	1.03	7.76
Community type										
Central city	2,567,358	51.7	0.74	0.67	7.20	4.58	2.54	5.66	0.72	10.53
Urban fringe/large town	1,563,761	31.5	1.05	0.58	5.93	4.30	3.93	4.77	0.85	9.42
Rural/small town	839,526	16.9	0.55	0.28	4.55	2.57	2.54	3.01	1.48	4.70

¹ Elementary schools have grade 6 or lower or a low grade of ungraded and no grade higher than 8. Secondary schools have no grade lower than 7. Combined schools have grades lower than 7 and higher than 8.

NOTE.—Students may participate in more than one program or service. Includes only kindergarten pupils who attend schools that offer first grade or above. Excludes pre-

kindergarten students. Totals differ from data appearing in other tables because of varying survey processing procedures and time period coverages.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Schools and Staffing Survey, 1993–94." (This table was prepared August 1995.)

Table 58.—Private elementary and secondary enrollment and schools, by selected characteristics: 1993–94

Selected characteristics	Kindergarten through 12th grade enrollment ¹				Schools			
	Total	Catholic	Other religious	Non-sectarian	Total	Catholic	Other religious	Non-sectarian
1	2	3	4	5	6	7	8	9
Total	4,970,646	2,516,130	1,686,064	768,451		8,351	12,180	5,563
School enrollment								
Less than 150	890,343	168,200	509,028	213,115	14,155	1,572	8,499	4,084
150 to 299	1,482,210	853,139	467,749	161,322	6,820	3,815	2,232	773
300 to 499	1,243,578	719,037	359,278	165,263	3,272	1,885	973	414
500 to 749	736,057	432,557	196,751	106,749	1,228	729	327	172
750 or more	618,457	343,197	153,257	122,003	619	350	149	120
Percent minority students								
Less than 5%	1,855,365	876,589	774,050	204,726	10,750	3,152	6,137	1,461
5%, but less than 20%	1,620,369	761,747	502,822	355,800	7,482	2,376	3,070	2,036
20%, but less than 50%	704,432	375,825	189,615	138,992	3,785	1,095	1,395	1,295
50% or more	790,479	501,969	219,577	68,933	4,076	1,727	1,578	771
Community type								
Central city	2,567,358	1,397,446	820,133	349,779	10,921	4,090	4,518	2,313
Urban fringe/large town	1,563,762	813,576	485,541	264,645	7,980	2,641	3,204	2,135
Rural/small town	839,525	305,108	380,391	154,027	7,192	1,620	4,458	1,114

¹ Includes only kindergarten pupils who attend schools that offer first grade.

NOTE.—Data are based upon a sample survey and may not be strictly comparable with data reported elsewhere. Includes only schools that offer first grade or above. Excludes prekindergarten students. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Schools and Staffing Survey, 1993–94." (This table was prepared August 1995.)

Table 1.--Number and percent of responding public schools in the study sample and estimated number and percent of public schools the sample represents, by school characteristics: 1995

School characteristic	Respondent sample		National estimate	
	Number	Percent	Number	Percent
All public schools	917	100	77,853	100
Instructional level				
Elementary	455	50	57,705	74
Secondary	421	46	18,083	23
Combined	41	5	2,064	3
Size of enrollment				
Less than 300	181	20	20,673	27
300 to 999	537	59	50,044	64
1,000 or more	199	22	7,136	9
Metropolitan status				
City	208	23	17,906	23
Urban fringe	230	25	18,464	24
Town	237	26	19,539	25
Rural	242	26	21,944	28
Geographic region				
Northeast	162	18	13,935	18
Southeast	206	23	16,568	21
Central	269	29	23,980	31
West	280	31	23,369	30
Percent minority enrollment				
Less than 6 percent	266	31	23,750	32
6 to 20 percent	219	25	18,036	24
21 to 49 percent	192	22	15,698	21
50 percent or more	194	22	16,390	22
Percent of students eligible for free or reduced-price school lunch				
Less than 11 percent	176	19	13,192	17
11 to 30 percent	284	31	21,876	28
31 to 70 percent	311	34	28,017	36
71 percent or more	143	16	14,651	19

NOTE: Percents may not sum to 100 because of rounding, and details may not add to totals because of rounding for weighted estimates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

24-port 10Base T Hubs (Source: Data Comm Warehouse)

Brand	Managed	Unmanaged
3Com	\$899	
Allied Telesyn International	\$899	\$360
Hewlett Packard	\$899	
Bay Networks	\$1,129	
Assante		\$379
Average	\$957	\$369

CSU/DSU - T1 (Source: PSINet Internet Warehouse)

Astrocomm NX1 T1	\$1,795
------------------	---------

Router (Source: PSINet Internet Warehouse)

Cisco 2504	\$3,495
Livingston	\$3,195
Average	\$3,345



Internet Warehouse

Modems & CSU/DSUs Networking hardware Network software

Product Number	Description	Prices†
ascend-50	Ascend Pipeline 50 Router (With Integrated NT1) Compatible with LAN-ISDN.	\$1,295.00
cisco-2504	Cisco 2504 Router (TokenRing, v.35, IP Only) Compatible with InterFrame® and InterPPP Services; LAN-ISDN (1B Channel)	\$3,495.00
cisco-2514	Cisco 2514 Dual Ethernet Router Compatible with InterFrame® and InterPPP Services	\$2,795.00
comp-sys-900i	Compatible Systems MicroRouter 900i Single Ethernet Router Compatible with LAN-DIAL, LAN-ISDN, InterPPP and InterFrame® 56Kbps Services	\$995.00
comp-sys-1220i	Compatible Systems MicroRouter 1220i Dual Ethernet Router Compatible with LAN-DIAL, LAN-ISDN, InterPPP and InterFrame® 56Kbps Services	\$1,995.00
comp-sys-1220iV35	Compatible Systems MicroRouter 1220i Dual Ethernet Router (With v.35 cable) Compatible with LAN-DIAL, LAN-ISDN, InterPPP and InterFrame® 56Kbps-T1 Services	\$2,080.00
farallon-netop 630	Farallon Netopia 630 ISDN Router (With Integrated NT1) PC Version for less than five users. Compatible with LAN-ISDN Service.	\$995.00
farallon-netop 640	Farallon Netopia 640 ISDN Router (With Integrated NT1) PC version for unlimited users. Compatible with LAN-ISDN Service.	\$1,275.00
farallon-netop 440	Farallon Netopia 440 ISDN Router (With Integrated NT1) Macintosh version for unlimited users. Compatible with LAN-ISDN Service.	\$1,475.00
livingston-irx 211	Livingston IRX-211 Firewall Router (With v.35 cable) Compatible with InterFrame® and InterPPP Services.	\$3,195.00
proteon-globetrot 60	Proteon Globetrotter 60 (With v.35 cable) Compatible with InterFrame® Service.	\$880.00
rockwell-nh-bri	Rockwell NetHopper NH-BRI 616 (With Integrated NT1) Includes internal analog modem. Compatible with LAN-ISDN and LAN-DIAL Service.	\$1,995.00
astro-nx1	Astrocomm NX1 T1 CSU/DSU (including sub-rate T1) Compatible with InterFrame® 128Kbps - T1 Services.	\$1,795.00

astro-2364	Astrocomm 2364 56K CSU/DSU Compatible with InterFrame® 56Kbps and InterPPP Services	\$520.00
usr-sportPC	US Robotics Sportster 28.8 Kbps Modem PC version compatible with UUPSI®, InterRamp, LAN-DIAL Service	\$279.00
usr-sportMAC	US Robotics Sportster 28.8 Kbps Modem Macintosh version compatible with UUPSI®, InterRamp, LAN-DIAL Service	\$279.00
3com-ImpactPC	3Com Impact (With External TA/NT1) PC version compatible with InterRamp Service via ISDN.	\$399.00
3com-ImpactMAC	3Com Impact (With External TA/NT1) Macintosh version compatible with InterRamp Service via ISDN.	\$399.00
motorola-bitsurfPC	Motorola Bitsurfer Pro (With External TA/NT1 and two analog ports) PC version compatible with LAN-ISDN and InterRamp Service via ISDN.	\$495.00
motorola-bitsurfMAC	Motorola Bitsurfer Pro (With External TA/NT1 and two analog ports) Macintosh version compatible with LAN-ISDN and InterRamp Service via ISDN.	\$495.00
nt-nt1	Northern Telecom™ Standalone NT1 Model A Includes 2 watt power supply. Compatible with InterRamp Service and LAN-ISDN Services.	\$300.00

Notes:

Product Number is required on your Purchase Order.

†Orders in Virginia must include 4.5% sales tax.

Continental U.S. Shipping:

There is a \$30 shipping fee for all hardware purchased through PSINet.

For more information contact info@psi.com.
To get a quote for organizational services, click [here](#).



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TS FROM THE LEADER 3Com

SuperStack II Hubs



SuperStack II Hubs

SuperStack™ II Hubs are stackable hubs that provide complete media flexibility and manageability. With a low initial investment, the SuperStack II Hub allows you to increase port density; add comprehensive, yet easy-to-use SNMP management; and provides features like high-performance RMON, resilient links, and powerful security. 3Com's SuperStack II system gives you a simple, cost-effective connectivity solution for local, wide area, and SNA networks. With SuperStack II, you can combine diverse technologies and network services in one stacked system, strengthen it with power system and resilience, and manage it all with Transcend® management software.

Media Choices. Create a single or mixed-media Ethernet stack with 12-port and 24-port RJ45 twisted-pair hubs, 6-port ST fiber hubs, and 24-port Telco twisted-pair hubs.

Slide-in SNMP management with RMON. A choice of user-installable management modules provides management for all the hubs in the stack.

Transcend® management. A choice of either Workgroup or Enterprise Management is available.

Manufacturer's lifetime warranty.

3Com SUPERSTACK II HUBS

DEH1961	SuperStack II 12 Port 10BaseT Hub	\$199
DEH1963	SuperStack II 24 Port 10BaseT Hub	\$299
DEH1954	SuperStack II Port Switch Hub 12 Port	\$999
DEH1973	SuperStack II Port Switch Hub 24 Port	\$1499
DEH1967	SuperStack II 48 Port System	\$2229
DEH1974	SuperStack II UPS System	\$999
DEH1960	SuperStack II 6 Port Fiber Hub	\$1549

Fast Ethernet Hubs



- High-performance 100Mbps hubs
- Each hub supports 12 100Mbps ports and an optional 13 port for downlink
- Stackable system allows for growth from 12 ports to 104 ports
- NEW! SuperStack II Hub 100T4 offer support for category 3 UTP cable
- NEW! SuperStack II UPS power supply keeps your network running during blackouts
- User-friendly slide in SNMP management module lets you add network management when you need it
- Lifetime manufacturer's warranty

The LinkBuilder FMS II and the NEW SuperStack II hubs keep your initial investment low, allowing you to increase port density and add comprehensive, yet simple SNMP management when you need it. 3Com's SuperStack II and new SuperStack II system offer an innovative architecture that allows Stackable hubs, bridges, routers, and switches to be easily integrated and managed as one system. The integration of hub and desktop management, in Transcend Workgroup Manager for Windows, provides better and more complete information, faster problem isolation, and a richer sense of administrative options than traditional devices management systems.

3Com FAST ETHERNET HUBS

DEH1976	SuperStack II 100 TX Hub 12 Port	\$1549
DEH1956	SuperStack II 100 T4 Hub 12 Port	\$1599
DEH1975	SuperStack II Hub 100 Management Module	\$1299
DEH1974	SuperStack II UPS Backup	\$999
DEH1953	SuperStack II UPS Management Module	\$499
DCS2449	Transcend Workgroup Manager for Windows v4.0	\$549

SuperStack & FMS Switches

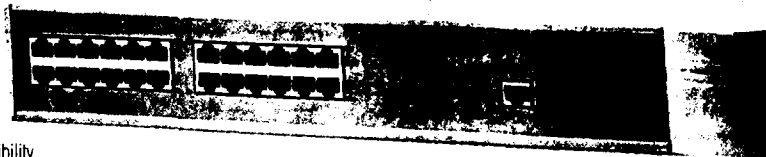
SuperStack II Switches

3Com's new SuperStack II system offers an innovative architecture that allows Stackable hubs, bridges, routers, and switches to be easily integrated and managed as one system.

The new SuperStack II 1000 Switches offer the same features as the FMS 1000 switches, but are designed to work with the new SuperStack II Port Switch Hubs. By utilizing 3Com switches with the new 3Com Port Switch hubs, users can segment 4 different backplanes per hub and 40 segments per stack.

The 3Com SuperStack II switch solutions offer enhanced performance, greater flexibility, and outstanding fault tolerance – all at an affordable price. The innovative 3Com solution allows you the freedom to balance bandwidth according to individual user, workgroup, or application requirements.

- Open up server bottlenecks with a 100Mbps Fast Ethernet connection
- Confine a downlink to a high-speed Fast Ethernet or 10Mbps Ethernet backbone



- LAN security architecture automatically disconnects unauthorized devices
- Full SNMP management, including Remote management (RMON)
- Get detailed per-port statistics and use gauges to monitor traffic error conditions, issue alarms, and disable a problem port

3Com SUPERSTACK II SWITCHES

DEH1968	SuperStack II Switch 1000 24 Port	\$3199
DEH1969	SuperStack II Switch 1000 12 Port	\$2549
DEH1972	SuperStack II Switch 2000	\$3559
DEH1971	SuperStack II Switch 3000 TX	\$5399
DEH1424	LinkSwitch 500	\$2599

**Data Comm
WAREHOUSE**
1-800-328-2261

Low Cost LAN Products!



4 & 8 Port Unmanaged Hubs

ATI's new mini hubs are twisted pair hubs intended to connect as many as eight IEEE 802.3 10Base-T network segment through one unit. Each hub has one twisted pair port specifically designed with an uplink (cascading) capability supporting a Media Dependent Interface (MDI/MDI-X) crossover switch. As many as four hubs can be cascaded together to form an independent workgroup.

These mini hubs utilize the latest IC and Surface Mount Technology (SMT), which increases functionality and reliability. Additionally, these hubs are very small in size, yet they provide the complete functionality of large hubs including packet regeneration and network partitioning.

Network diagnostic LEDs are provided on the front of the mini hubs to aid in monitoring system and network performance. There is one LED associated with each twisted pair segment that indicates "Link OK" (indicating an operational segment). Additionally, there are three central LEDs indicating "Activity", "Collision" and "Power". Lifetime ATI Warranty (One Year on Power Supply).

DEH2051: 4 Port 10Base-T Hub	\$79 ⁹⁵
DEH2050: 8 Port 10Base-T	\$99 ⁹⁵

Two Port Micro Repeaters

Fully compliant, compact repeaters offer low-cost solutions for media conversion and LAN extension applications. These two-port Ethernet repeaters/media converters let you connect UTP, Thin coax, and Fiber in any combination.

DER1009: Dual Port Repeater BNC/RJ45	\$219
DER1008: Dual Port Repeater AUI/RJ45	\$209
DER1011: Dual Port Repeater AUI/BNC	\$249
DER1010: Dual Port Repeater AUI/AUI	\$249
DER1012: Dual Port Repeater BNC/BNC	\$269
DER1095: Dual Port Repeater RJ45/Fiber Optic ST	\$299
DER1013: Dual Port Repeater AUI/Fiber Optic ST	\$329
DER1014: Dual Port Repeater BNC/Fiber Optic ST	\$349

Unmanaged 10Base-T Hubs

The twisted-pair micro concentrators connect up to 24 IEEE 802.3 10Base-T network segments. These concentrators come with an Attachment Unit Interface (AUI) to connect to other LAN media through an external transceiver. Allied Telesyn offers 4, 8, 12, 16 and 24 port unmanaged hubs. All with easy to read LED's and Allied Telesyn quality.

DER1004: 10Base-T 4 Port Concentrator	\$119 ⁹⁵
---------------------------------------	---------------------

DEH1488: 8 Port 10Base-T Hub 1 AUI, 1BNC	\$129 ⁹⁵
DER1006: 10Base-T 12 Port Concentrator	\$229
DEH1485: 12 Port 10Base-T Hub 1 AUI, 1 BNC	\$229 ⁹⁵
DEH1486: 16 Port 10Base-T Hub 1 AUI, 1BNC	\$259 ⁹⁵
DEH1487: 24 Port 10Base-T Hub 1 AUI, 1 BNC	\$359 ⁹⁵

Stackable Managed Hubs

Allied Telesyn created its 3600 family of department concentrators to provide a flexible, affordable solution for both small and large network applications. By using a symmetric modular system approach, Allied Telesyn delivers unmatched user flexibility and network redundancy. All at a low entry cost per node. Manufacturer's Lifetime Warranty (1 year on fan & power supply).

FAXFACTS: 139141

DEH1056: 12 port 10Base-T Concentrator w/SNMP and RJ45/AUI	\$679
DEH1115: 12 port 10Base-T Concentrator w/SNMP and RJ45/BNC	\$799
DEH1330: 24 port 10Base-T Concentrator w/SNMP and RJ45/AUI	\$899
DEH1055: 8 port BNC Concentrator w/SNMP and BNC/AUI	\$1199

DEH1116: 8 port BNC Concentrator w/SNMP and BNC/BNC	\$1299
DEH1054: 6 Port 10Base FL Concentrator w/SNMP & ST/AUI	\$1399
DEH1117: 3600 2 Slot Chassis	\$99
DEH1118: 3600 4 Slot Chassis	\$499
DEH1034: 3600 8 Slot Chassis	\$429
DEH1203: 19" Rack Mount Bracket 3600	\$25

24 Port 10Base-T Hub

The AT 3624TRS, with 24 shielded RJ45 connectors and 1 AUI port, is SNMP manageable when used in conjunction with an SNMP managed hubs (shown above) and a 3600 chassis. Manufacturer's Lifetime Warranty (1 year on fan & power supply)

FaxFacts: 139142	
DEH1140: 24 port 10Base-T Concentrator (AT-3624TRS)	\$629
DEH1238: 24 Port 10Base-T/Telco Concentrator (AT-3624TS)	\$629

1-800-328-2261 Data Comm

Advanced Quality and Expandability



NEW AdvanceStack Hubs

Standard Features

- Offers improved ergonomics
- Mounts in a standard 19-inch rack
- All mounting hardware included

Advanced Features

- Includes Intel i560 RISC-based processor, 1 Mbyte RAM, and 256 Kbytes Flash EEPROM
- Free management software (StackManager)
- Expansion modules available for bridgerouting, security, and dial-in/dial-out capability

HP AdvanceStack 10Base-T networking products offer low-cost choices and a flexible platform for stand-alone and interconnected workgroups. Simply add an expansion module, or stack on another hub to meet changing network needs. Entry-level hubs and modules, ideal for relatively small businesses, let you "pay as you grow." Choose from 12, 24, 48 port hubs. Add one SNMP expansion module and you can manage a stack of 16 hubs (784 nodes) up to 185 meters apart! HP AdvanceStack stackable hubs (HP J2600A, HP J2601A, and HP J2602A) are 10Base-T/Ethernet multi-port repeaters that incorporate the advantages of modular solutions while improving on the benefits you have come to expect from stackable hubs.

Standalone Workgroups

- DEH1725: AdvanceStack 8E 8 Port Hub **\$179**
 DEH1724: AdvanceStack 8U 8 Port Hub **\$269**
 DEH1723: AdvanceStack 8U 8 with SNMP **\$519**

- DEH1727: AdvanceStack 16U 16 Port Hub **\$519**
 DEH1726: AdvanceStack 16U with SNMP **\$869**

Managed Workgroups

- DEH1373: AdvanceStack 10 Base-T Hub 12 Port J2600A **\$539**
 DEH1374: AdvanceStack 10 Base-T Hub 12 w/SNMP J2630A **\$999**
 DEH1375: AdvanceStack 10 Base-T Hub 24 Port J2601A **\$899**
 DEH1641: AdvanceStack 10 Base-T Hub 24 Port w/SNMP J2631B **\$1329**
 DEH1365: SNMP Module J2603A **\$499**
 DEH1378: AdvanceStack 10 Base-T Hub 48/SNMP J2632A **\$2279**

Accessories

- DEH1370: AUI Port Module **\$69**
 DEH1368: Twisted Pair Transceiver Module **\$99**
 DEH1369: Thinnet Transceiver Module **\$149**
 DEH1367: Fiber Optic Transceiver Module **\$249**

New! 100VG & TX Adapters and Hubs

- IEEE 802.12 compliance provides flexible, switch-configurable Ethernet and Token Ring frame support over existing cabling
- "Plug-and-Forget" installation for minimum set-up and configuration time
- Industry-leading, Manufacturer's lifetime warranty

- DEH1717: AdvanceStack 7 Port 100VG 7E Hub **\$699**
 DEH1716: AdvanceStack 7 Port Managed 7M 100VG Hub **\$1549**
 DEH1718: AdvanceStack 14 Port 100VG 14 Hub **\$1599**
 DEH1728: HP 100VG SNMP/Bridge Module **\$979**
 DEC1968: Desk Direct 10/100VG PCI Adapter **\$169**
 DEC1968: Desk Direct 10/100VG ISA Adapter **\$179**
 DEC1964: Desk Direct 10/100VG EISA Adapter **\$239**
 DEC2312: DeskDirect 10/100-TX PCI **\$149**
 DEC2311: DeskDirect 10/100-TX PCI 6 Pack **\$849**
 DEC2310: DeskDirect 10/100-TX PCI 24 Pack **\$3235**

HP Print Servers

JetDirect Cards internally connect HP Printers



JETDirect EX
from
\$299⁹⁵

- Internal print server for HP Printers
- Includes support for LocalTalk networks
- Supports up to 16 NetWare file servers and 64 print queues
- Throughput of up to 350KBps

Print Servers from HP let you connect one to three printers quickly and easily to your Network or UNIX environment. They'll boost your printing performance while letting you remotely manage printer networks. An internal HP JetDirect card lets you connect network-ready HP printers anywhere on your LAN. All HP JetDirect Print Servers take just minutes to install and dramatically boost your printing performance.

Data Comm
WAREHOUSE
1-800-328-2261

JetDirect EX Plus 3 Supports 3 printers simultaneously

JetDirect Print Servers comply with all major network operating systems for Ethernet and Token Ring networks. Get true multi-protocol support, a flash memory for easy software upgrades over the network, and SNMP agents for support of industry-standard network management applications with one print server. JetDirect automatically installs your driver, printer configuration, and remote printer status.

With the HP EX Plus 3:

- Manage up to 3 printers at once!
- 3 high-speed HP Bi-Tronics ports, IEEE 1284 compliant
- Easily install and manage any 3 parallel printers
- Throughput of up to 230KBps

				NETWORK OPERATING SYSTEM / PROTOCOL SUPPORT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Part #	Product # Network Type/Port	Price	HP Peripheral	Novell NetWare	Microsoft [®] LAN Manager	Windows NT Workgroup	Windows NT Workgroups	IBM LAN Server	TOPP	Apple EtherTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple LocalTalk	Apple 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Also available for the LaserJet Series II & III call for more information
 • While Supplies Last

*Apple LocalTalk is not available on the HP DesignJet 600 printers.
 **See a Ethernet is supported only with Bi-Tronics-based peripherals with Adobe® PostScript™ 3.0™
 †Apple LaserJet 4V, 4MV, 4Si, 4Si MX, HiSi, 4 Plus, 4M Plus, 4, and 4M Printers.

Hardworking Hubs for Demanding Networks!

12 Port Fast
Ethernet Hub Only

\$1599*

NEW



Bay Networks™

BayStack: High End Network Solutions

BayStack 100Base-T

The BayStack 100BASE-T Fast Ethernet Stackable Hubs deliver 100 Mbps connectivity for power workgroups and other demanding network environments. They're a low-cost, high-performance solution that easily supports today's increasingly powerful PCs and servers. Approved by the IEEE as an 802.3 Ethernet standard and supported by more than 75 networking vendors, 100BASE-T represents the next logical step for organizations seeking to improve the performance of their existing networks.

DEH1556: BayStack 100Base-T Stackable Hubs **\$1599***
DEH1596: BayStack Hub to Hub cable (100Mbps) **\$99**

BayStack 10Base-T

- **Scalability:** Expand from 12 to 24 ports; stack six units for 132 managed hub ports
 - **Manageability:** Optivity® plus Advanced agent management
- BayStack 10BASE-T hubs deliver the flexible, scalable solutions that growing workgroups need. 12 and 24 port models satisfy most entry-level LANs. If the department grows, so does the network; up to 10 hubs can be stacked to accommodate new users. A unique segmentation feature supports up to 10 independent segments within a stack, dividing network traffic to keep data flowing smoothly. And dual media adapters provide flexible interfaces for connecting to the corporate backbone. Combined with redundant

power and complete stack and segment management through a single management module, BayStack 10BASE-T hubs deliver the industry's most reliable and affordable work group solution.

DEH1642: BayStack 12 Port 10Base-T Hub **\$629**
DEH1643: BayStack 24 Port 10Base-T Hub **\$1129**
DEH1688: BayStack 10Base-T-FL Fiber Module **\$269**
DEH1687: BayStack Hub to Hub Cable (10Mbps) **\$69**
DEH1686: BayStack SNMP Module Kit **\$529**
DEH1733: BayStack 10Base-T Advanced Network Mgmt Module **\$739**

Up To
80 Managed
Ports!

2800A Workgroup Concentrator

The SynOptics Model 2800A 10Base-T Concentrator delivers one of the industry's most affordable solutions for supporting small Ethernet networks. Designed for simple plug-and-play installation, the Model 2800A supports Ethernet in a physical star configuration using a building's existing structured cabling system.

FaxFacts: 139065
DEH1024: 2803 16-Port Manageable Hub with AUI Port **\$639**
DEH1025: 2804 16-Port Manageable Hub with Fiber Port **\$839**
DEH1028: 2813-04 16-Port Managed Hub with AUI / Port & Advanced SNMP Management (RMON) **\$1499**
DEH1029: 2813-05 16-Port Managed Hub with AUI / Port & Standard SNMP Management **\$969**
DEH1026: 2814-04 16-Port Managed Hub with Fiber Port & Advanced SNMP Management (RMON) **\$1699**
DEH1027: 2814-05 16-Port Managed Hub with Fiber Port & Standard SNMP Management **\$1199**
DCS1198: 600 Lattis EZ-View SNMP Management for 2813 Software and 2814 **\$499**
DEH1023: Model 2800A Unmanaged Hub **\$569**

* Model 2800 Expansion Cables included w/DEH 1024 and DEH1025.
Also available separately.

2000 Stackable Hubs

The SynOptics 2000 family of 10Base-T workgroup hubs consists of the Model 2803/2804 and the Model 2813/2814. In stand-alone configurations, the Model 2803 and Model 2804 offer simple connectivity and low-level management. Both models provide connectivity and a choice of Standard and Advanced agent management options.

The Model 2803 and Model 2804 feature 16 modular RJ45 unshielded twisted pair host ports, as well as front-panel AUI (Model 2803) or ST-type 10Base-FL-compatible (Model 2804) up-ports for connecting to a variety of network backbones. A series of front-panel LEDs report hub traffic, collisions, management control and expansion status, while per-port LEDs indicate link and partition status for individual connections.

Lattis System 800

The Model 800 10Base-T Workgroup Hub supports small offices and stand-alone networks requiring simple connectivity. Eight ports offer a plug-and-play solution for linking equipment such as PCs, printers and servers.

The Model 810M 10Base-T Workgroup Hub is just like the Model 800, with the addition of integrated SNMP management capabilities that make the hub a perfect solution for small LANs requiring connectivity to the corporate network. The model 2800 Workgroup Concentrator delivers one of the industry's most affordable solutions for supporting small Ethernet networks.

• **Manufacturer's Lifetime Warranty**

FaxFacts: 139085
DEH1209: Model 800 **\$209⁹⁵**
DEH1223: Model 810M **\$549⁹⁵**

Ethernet Workgroup Switch

- **Performance:** Segments existing shared-media networks for increased performance
- **Simplicity:** Easy to install and configure
- **Reliability:** Redundant power and SNMP management ensures uninterrupted performance
- **Affordability:** Cost-effective - use wherever bandwidth is an issue

The Bay Networks™ Ethernet Workgroup Switch™ offers performance-enhancing switching solutions for high-density wiring closets. It's a simple, cost-effective method for segmenting networks to improve performance and eliminate data bottlenecks. In addition to the 10 Mbps switch ports, an optional 10G Mbps 100BASE-T Fast Ethernet switched port supports high-speed connections to high-speed servers and backbones. Plug-in Media Adapters offering 100BASE-TX or 100BASE-FX connectivity are available for supporting 100BASE-T Fast Ethernet over Category 5 unshielded twisted pair (UTP) or fiber optic cabling.

DEH1557: Ethernet Workgroup Switch **\$2199**
DEH1561: Ethernet Workgroup Switch with 100Base-T Port **\$3159**

SynOptics

10Base-T & 100Base-T Cards and Hubs

10/100 PCI
Adapter Only
\$131

AsantéFAST Ethernet Products

ASANTÉ



AsantéFAST 100 Hub

- Connects from 12 to 180 users per stack running 100Base-TX Fast Ethernet
- Class II stackable architecture supports up to 358 ports in one collision domain
- AsantéFAST 100 Management Module snaps on to the hub stack for full SNMP management
- Auto positioning isolates problems ports and keeps networks running

The AsantéFAST 100 TX/FX Hub offers the most flexible Fast Ethernet Hub. The AsantéFAST 100 Hub's modular, stack-

able design provides total expandability by creating a single high-speed backplane scalable to 15 hubs high.

DEH1605: AsantéFast 100TX 12 Port Hub	\$1499
DEH1609: AsantéFast 100TX/FX 8 Port Hub	\$1599
DEH1603: Fast Ethernet Management Module	\$1099

100BASE-TX Fast Ethernet Unmanaged Hubs

- 6 and 12 port hubs that connect

your users to a 100BASE-TX FastEthernet network.

- 10 times the performance of 10Mbps Ethernet for workgroups with high-band width requirements.
- Plug it in and power it up! No switches, no jumpers, and no software required.

DEH1607: AsantéFast 100Base-TX 6 Port Hub	\$699
DEH1608: AsantéFast 100Base-TX 12 Port Hub	\$1299

AsantéFAST 10/100 Adapter PC Edition

- N-Way Auto Negotiation
- Instant migration from 10Mbps to 100Mbps networking
- The PCI adapter's 32-bit bus mastering design allows maximum throughput without loading the host CPU
- Easily visible LEDs indicate 10 Mbps operation, 100Mbps operation, link integrity and data traffic

All-in-one compatibility to 10Base-T and 100Base-TX Ethernet networks. A single RJ-45 port and all drivers support both 10 and 100Mbps operation. Available in 20 packs.

DEC1807: AsantéFast 10/100 PCI	\$139
DEC1809: AsantéFast 10/100 PCI 5 pk	\$659

Macintosh & PC Support Adapter

All-in-one compatibility to 10Base-T and 100Base-TX Ethernet networks. The AsantéFAST 10/100 offers compatibility

with both Macintosh and PC PCI bus computers and works with existing 10Mbps Network. When it's time to switch your department to 100Mbps, simply plug the network cable into a Fast Ethernet hub and your AsantéFAST 10/100 is ready to run at 100Mbps. The adapter will automatically connect at the correct speed.

DEC1893: 10/100 Adapter (Mac/PC)	\$199
DEC1806: 10/100 NuBus Adapter	\$279

AsantéFAST 10/100 Bridge

The AsantéFAST 10/100 Bridge is a simple and affordable way to integrate a high-performance network for power-users while maintaining access to services on the 10Mbps LAN, such as e-mail and printing. The bridge also increases overall network bandwidth by segmenting workgroups.

DEB1144: 10/100 Bridge	\$861
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10Base-T Hubs

- Install in minutes. No switches, no jumpers, no software
- LED lights easily visible from both wall mount and desktop positions for quick and simple diagnostics
- Built-in auto-partitioning instantly isolates network failures
- 100% compliant with IEEE 802.3 Ethernet specifications
- Manufacturer's Lifetime Warranty and free technical support

FaxFacts: 139160

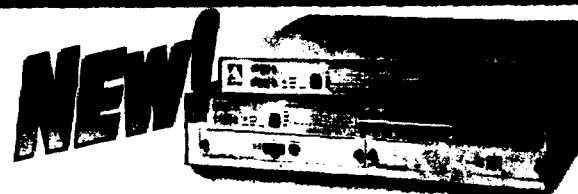
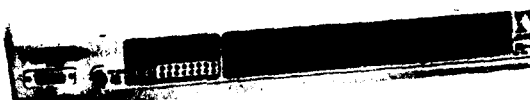
DEH1310: 10Base-T Hub/ 8 (8UTP, 1BNC, 1 AUI)	\$129
DEH1311: 10Base-T Hub/ 12 (12UTP, 1BNC, 1 AUI)	\$239
DEH1312: 10Base-T Hub/ 24 (24UTP, AUI)	\$379
DEH1313: 10Base-T Hub/6 BNC, 1 AUI	\$299

1016 IQ Hub

This intelligent 10Base-T hub brings sophisticated hub capabilities to departmental Ethernet networks. Engineered in strict compliance with all relevant IEEE 802.3 specifications, the AsantéHub 1016 IQ not only integrates smoothly into established networks, but also provides a solid platform for small and growing networks. Manufacturer's Lifetime Warranty.

FaxFacts: 180072

DEH1606: Asanté 1016 IQ Hub (16 RJ-45, 1 BNC, 1 AUI)	\$699
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ReadySwitch 5216

- Plug-and-Play installation is transparent to network users.
 - SNMP-manageable from any SNMP network manager, Telnet or console port.
- With the Asanté 5216 Switch, you can segment network traffic, add security and create virtual LANs all with one powerful, easy-to-use switch. The Asanté 5216 Switch is a high-performance, sixteen-port switch which utilizes your existing 10Base-T network infrastructure and also includes two 100Base-TX "trunks" for providing high-speed links to servers or backbones. By installing the Asanté 5216 Switch, you can instantly solve LAN congestion problems by increasing aggregate bandwidth up to sixteen times, for a total of 360 Mbps. The Asanté 5216 Switch products offer total network control by delivering the most complete, state-of-the-art implementation of VLAN, RMON and port mirroring management on the market.

DEH2010: Ready Switch 5216	\$449
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ReadySwitch 5104

- 4 port 10Base-T switch plus 100Base-TX Fast Ethernet link
 - Supports simultaneous packet transfers at full Ethernet bandwidth
 - 10Mbps ports leverage existing network infrastructure-no need to rewire, change adapters, or management system
- Install the ReadySwitch 5104 and see up to a four-fold increase in your aggregate bandwidth. The ReadySwitch 5104 is manageable from any console Telnet

Data Comm 1.800.228.2261

\$110